## REMARKS

In response to the Office Action dated December 31, 2002, claims 1, 8, 18, 25 and 28 have been amended. Therefore, claims 1-28 remain in the case. Reexamination and reconsideration of the amended application are requested.

### Section 112, First Paragraph Rejection

The Office Action rejected claim 28 under 35 U.S.C. § 112, first paragraph as containing subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

In particular, the Office Action maintained that the Applicants' specification "fails to clearly specify how to transmit a low-resolution version of the omni-directional image to the viewer platform as recited in the claim such that the system is capable of transmitting only a high-resolution version of the selected portion to the viewer platform."

In response, the Applicants have amended claim 28 to overcome this rejection. Amended claim 28 now recites the method of independent claim 18 including transmitting a low-resolution version of the omni-directional image to the viewer platform, where the omni-directional produced by the omni-directional camera system is a high-resolution omni-directional image. The method further includes selecting which portion of the omni-directional image to view, the selection being made by at least one of: (a) manually by the viewer; (b) automatically by a virtual director module; and transmitting a high-resolution version of the selected portion of the omni-directional image to the viewer platform.

Support for claim 28 is found in the Applicants' specification. In particular, various image resolutions are discussed therein. For example, when discussing users interfaces, the Applicants' specification states that "[a]mong the user interfaces, some show full-resolution video of all meeting participants" (specification, paragraph 0061, lines 4-6). In addition, in "one implementation of the present invention, the omni-directional camera

system . . . has a resolution of 1000x1000 pixels, 10 frames per second. . . and a <u>lesser or greater number of pixels</u> and frames rates may be used" (specification, paragraph 0043, lines 5-7).

In amended claim 28, the omni-directional image filmed by the omni-directional camera system is a high-resolution omni-directional image. A lower-resolution version of the omni-directional image is sent to the viewer platform in order to allow a user to select a portion of the image. The Applicants submit that reducing the resolution of a high-resolution image to a lower-resolution image is well known in the art. Once a portion has been selected, either manually by the viewer or automatically by the virtual director module, the selected portion is obtained from the original high-resolution version of the omni-directional image and sent to the viewer platform.

Based on the amendments to claim 28 and the above arguments, the Applicants submit that the rejection of claim 28 under 35 U.S.C. § 112, first paragraph has been overcome.

<u>Section 112, Second Paragraph Rejection</u>

The Office Action rejected claim 25 under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter that the Applicants regard as their invention. In particular, the Office Action stated that "it is unclear what is meant by visible physical movement and how the camera system requires no visible physical movement to capture the event participants."

In response to the rejection of claim 25, the Applicants respectfully traverse this rejection based on the following arguments and the amendment to claim 25. First, the Applicants note that "the words of the claim must be given their plain meaning unless applicant has provided a clear definition in the specification" (MPEP § 2111.01). Second, given its plain meaning, the Applicants submit that the phrase "no physical movement" as applied to the omni-directional camera system means that none of the parts of the camera system moved when the camera system is capturing the event participants. For example,

the system is not rotating around to change its field-of-view. This absence of physical movement is made possible by the fact that the camera system is omni-directional and produces an omni-directional image. Moreover, because the camera system produces an omni-directional image, functions such as zoom and pan can be accomplished digitally without requiring the physical movement of the camera system.

In light of the above arguments and amendment to claim 25, the Applicants submit that the rejection of claim 25 under 35 U.S.C. § 112, second paragraph has been overcome.

## Section 102(b) Rejections

The Office Action rejected claims 1, 5, 7-16 and 25-27 under 35 U.S.C. § 102(b) as being anticipated by Kannes (U.S. Patent No. 5,382,972). The Office Action stated that Kannes discloses all the elements or features of the Applicants' claimed invention.

In response, the Applicants respectfully traverse these rejections based on claim amendments and the following legal and technical analysis. Claims 1 and 8 have been amended to more clearly distinguish the Applicants' claimed invention. The Applicants submit that Kannes lacks at least one feature of the Applicants' claimed invention. In particular, Kannes does not teach, either explicitly or implicitly, the Applicants' material claimed feature of an omni-directional camera system that provides a seamless omni-directional image of the event.

## Amended Independent Claim 1 and Dependent Claims

Amended independent claim 1 of the Applicants' claimed invention includes an automated event presentation system for capturing and viewing an event having event participants. The system includes an omni-directional camera system that provides a seamless omni-directional image of the event. The system also includes an automated online broadcasting system that controls the omni-directional camera system, and uses the omni-directional camera system to keep track of each of the monitored event participants. This monitoring and tracking is performed for each event participant

simultaneously. The automated online broadcasting system also broadcasts the event. A viewer platform is included in the system that is in communication with the automated online broadcasting system and allows a viewer to view the broadcasted event.

A seamless omni-directional image is provided by the omni-directional camera system in both of the two configurations disclosed in the Applicants' specification. In a first configuration, the omni-directional camera includes "a single wide-angle camera that is capable of providing a panoramic (such as a 360-degree) view. By way of example, the omni-directional camera may achieve this wide-angle field-of-view by using a wide-angle imaging device (such as a curved mirror device) so that the camera is aimed at the curved mirror device" (specification, paragraph 0028, lines 4-9). This first configuration provides a seamless omni-directional image. As is known in the art, an omni-directional image contains a uniform view of the scene at which the camera is aimed. This means that if the camera is used in a meeting room that each of the participants in that room will be contained in the omni-directional image. Moreover, there will be no seams or discontinuities in the omni-directional image produced by the camera so that none of the participants will overlap in the seamless omni-directional image.

In a second omni-directional camera configuration, the omni-directional camera system includes "a plurality of cameras" with each of the plurality of cameras "having less than a 360-degree field-of-view. In this case, the plurality of cameras may be arranged so that the plurality of cameras together provide an approximately 360-degree field-of-view of the meeting environment" (specification, paragraph 0028, lines 11-14). In this configuration, "an array of cameras is used in a circular configuration . . . and each camera is pointing outward and has a field-of-view of less than 360 degrees. The individual camera views (or images) are stitched together with image processing algorithms to construct a panoramic image" (specification, paragraph 0031, lines 7-10). This stitching together provides a <u>seamless</u> omni-directional image that is "functionally equivalent to those captured with a single imaging sensor panoramic camera" (specification, paragraph 0031, lines 10-12). In other words, whether captured by a single panoramic camera or a camera array in a circular configuration, both types of claimed omni-directional camera

systems provide a seamless and uniform omni-directional image.

In contrast, Kannes does not teach an omni-directional camera system that provides a <u>seamless omni-directional image</u>. In fact, a seamless omni-directional image as claimed by the Applicants cannot be produced by the system of Kannes for a number of reasons. First, Kannes merely discloses a system where each of a plurality of cameras is aimed at a participant (col. 5, lines 8-9). In this configuration, the output of the cameras is a tight shot of each participant that contains seams because there are gaps in image outputs of the cameras.

Second, even if each camera in Kannes provides "a wide angle view of all or part of the local module", this is not a seamless omni-directional image (col. 5, lines 9-10). Specifically, if each of the cameras 21, 22, 23, 24 shown in FIG. 1 of Kannes is equipped with a wide-angle lens, then the resulting output from each camera placed side by side will result in overlap between output images. One reason is, as shown in FIG. 1 of Kannes, the cameras are not in a tight circular configuration. This means that in some cases a participant could wind up being captured by more than one camera. In this situation, the person being captured by multiple cameras would appear in more than one window of the user interface shown in Kannes (see FIGS. 2 and 4). Because Kannes does not teach avoiding overlap by placing the cameras in circular configuration, Kannes cannot teach the Applicants' claimed seamless omni-directional image.

Even if the cameras in Kannes were placed in a tight circular configuration and the wide-angle lens on each camera were calibrated such that there was no image overlap between cameras, Kannes still would not produce the Applicants' claimed seamless omni-directional image. This is because output from different cameras is invariably out of synchronization with each other. This lack of synchronization results in a temporal seam between camera outputs. For example, the output of one camera may be milliseconds behind the output of another camera. Thus, because there is no teaching of synchronizing the cameras Kannes cannot teach the Applicants' claimed seamless omni-directional image.

The Applicants, therefore, respectfully traverse this rejection of amended independent claim 1 because Kannes does not teach, either explicitly or implicitly, the material claimed feature of an <u>omni-directional camera system</u> that provides a <u>seamless omni-directional image</u> of the event. Because of this missing feature, the §102 rejection cannot stand.

### Amended Independent Claim 8

Amended claim 8 of the Applicants' claimed invention includes a method for filming and recording an event having event participants and presenting the event to a viewer. The method includes filming and recording the event using an omni-directional camera system to provide a <u>seamless omni-directional image</u> that contains each of the event participants and determining a location of the event participants in the omni-directional image. The method also includes providing a user interface that allows a choice of which of the event participants in the omni-directional image to view. This choice can be made by the viewer and by a virtual director. The method also includes switching instantaneously between views of the event participants in the omni-directional image in response to the choice.

Conversely, as noted above, Kannes does not teach, either explicitly or implicitly, the material claimed feature of providing a <u>seamless omni-directional image</u>. Quite the opposite, Kannes is unable to provide a seamless omni-directional image for a number of reasons, as outlined above. Thus, unlike the Applicants' claimed invention that provides a <u>seamless omni-directional image</u>, Kannes merely provides camera output that if placed together would produce an image containing seams and overlap.

The Applicants, therefore, respectfully traverse this rejection of amended independent claim 8 because Kannes does not teach, either explicitly or implicitly, the material claimed feature of providing a <u>seamless omni-directional image</u>. Because of this missing claimed feature, the §102 rejection cannot stand.

Because the Applicants' claimed invention includes features neither explicitly disclosed nor suggested by Kannes, the Applicants respectfully submit that the rejections of amended independent claims 1 and 8 under 35 U.S.C. § 102(b) as being anticipated by Kannes have been overcome. Moreover, rejected claims 5, 7 and 25-27 depend from independent claim 1 and rejected claims 9-16 depend from independent claim 8 and are therefore also novel over Kannes (MPEP § 2143.03). The Applicants, therefore, respectfully request reexamination, reconsideration and withdrawal of the rejection of claims 1, 5, 7-16 and 25-27 under 35 U.S.C. § 102(b) as being anticipated by Kannes based on the amendments and arguments above and below.

## Section 103(a) Rejections

The Office Action rejected claims 2-4 and 17 under 35 U.S.C. § 103(a) as being unpatentable over Kannes in view of Martin et al. (U.S. Patent No. 5,877,801). The Office Action contended that Kannes discloses all elements of the Applicants' claimed invention except for "not specifically teaching the camera system including a camera having a wide-angle view of approximately 360 degrees field of view." However, Office Action contended that Martin et al. teach using a wide-angle lens "in order to improve the field of view." Therefore, the Office Action contended that "it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Kannes in using the camera for capturing a wide-angle view . . . in order to improve the field of view."

In response, the Applicants respectfully traverse these rejections based on the amendments to claims 1 and 8, the following legal analysis, and the technical analysis above and below. The Applicants submit that Kannes and Martin et al. lack at least one claimed feature of the Applicants' invention. In particular, neither Kannes nor Martin et al. teach, either explicitly or implicitly, the material claimed feature of an omni-directional camera system that provides a seamless omni-directional image of the event.

Further, both Kannes and Martin et al. fail to appreciate the advantages of this claimed feature. In addition, there is no technical suggestion or motivation disclosed in

Kannes or Martin et al. to define this claimed feature. Thus, the Applicants submit that Kannes and Martin et al. cannot make obvious the Applicants' claimed feature of analysis module for indexing information about event participants.

To make a prima facie showing of obviousness, all of the claimed features of an Applicants' invention must be considered, <u>especially when they are missing from the prior art</u>. If a claimed feature is <u>not disclosed in the prior art</u> and has <u>advantages not appreciated by the prior art</u>, then no prima facie showing of obviousness has been made. The Federal Circuit Court has held that it was an error not to distinguish claims over a combination of prior art references where a material limitation in the claimed system and its purpose was not taught therein. *In re Fine,* 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). Moreover, as stated in the MPEP, if a prior art reference does not <u>disclose, suggest or provide any motivation</u> for at least one claimed feature of an Applicants' invention, then a prima facie case of obviousness has not been established (MPEP § 2142).

Amended Independent Claim 1 and Dependent Claims

As noted above, amended independent claim 1 of the Applicants' invention includes the claimed feature of an omni-directional camera system that provides a <u>seamless omni-directional image</u> of the event and simultaneously monitors the event participants.

In contrast, as discussed above, Kannes does not explicitly disclose the Applicants' claimed feature of an omni-directional camera system that provides a seamless omni-directional image of the event. Moreover, Kannes does not implicitly suggest or provide motivation for this claimed feature of the Applicants' claimed invention. Specifically, there is no suggestion or motivation because Kannes merely teaches filming individual participants or providing an overall view of a courtroom. This is quite different from the Applicants' claimed omni-directional camera system that provides a seamless omni-directional image of the event and simultaneously monitors the event participants. In fact, Kannes does not mention seamless omni-directional images or even omni-directional

images at all.

Martin et al. add nothing to the cited combination that would render the Applicants' claimed invention obvious. As shown in the Applicant's discussion below, Martin et al. also lack a claimed feature of the Applicants' invention. Martin et al. also do not explicitly disclose or implicitly suggest or provide motivation for the Applicants' claimed feature.

Martin et al. merely disclose a system that corrects for distortion in a fish-eye lens at a remote location (Abstract). The system is concerned with achieving this perspective-corrected view at the remote location without transmitting control signal to the image creation site. However, nowhere do Martin et al. discuss the Applicants' claimed feature of an omni-directional camera system that provides a <u>seamless omni-directional image</u> of the event. Consequently, no motivation or suggestion for this feature of the Applicants' claimed invention is provided. Absent this motivation or suggestion, Martin et al. cannot render the Applicants' claimed invention obvious (MPEP § 2143.01).

In addition to lacking this claimed feature of the Applicants' invention, Kannes and Martin et al. <u>fail</u> to appreciate or recognize the <u>advantages</u> of the Applicants' claimed omni-directional camera system that provides a <u>seamless omni-directional image</u> of the event. More specifically, the Applicants' seamless omni-directional image allows simultaneously monitoring of participants. This simultaneous monitoring allows a camera view (as seen by a viewer) to be switched with delay (specification, paragraph 0054, lines 1-2). This alleviates any latency between the switching of views and gives the viewer a better viewing experience (paragraph 0054, lines 5-6). Neither Kannes nor Martin et al. discuss or appreciate these advantages of the Applicants' claimed feature of an omni-directional camera system that provides a <u>seamless omni-directional image</u> of the event and simultaneously monitors the event participants.

The Applicants, therefore, submit that obviousness cannot be established since both Kannes and Martin et al. <u>lack</u> a material claimed feature of the Applicants' invention. Namely, the Applicants' claimed feature of an omni-directional camera

system that provides a <u>seamless omni-directional image</u> of the event and simultaneously monitors the event participants is not taught by Kannes and Martin et al..

In addition to explicitly lacking this feature, both Kannes and Martin et al. fail to implicitly disclose this claimed feature. In particular, Kannes and Martin et al. lack any suggestion and fail to provide any motivation for this claimed feature. Further, Kannes and Martin et al. fail to appreciate advantages of this claimed feature. Therefore, as set forth in *In re Fine* and MPEP § 2142, Kannes and Martin et al. simply cannot render the Applicants' claimed invention obvious. Consequently, because a prima facie case of obviousness cannot be established due to the lack of "some teaching, suggestion, or incentive", the rejection must be withdrawn. MPEP 2143.01; <u>ACS Hospital Systems, Inc. v. Montefiore Hospital</u>, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984).

Accordingly, the Applicants respectfully submit that amended independent claim 1 is patentable under 35 U.S.C. § 103(a) over Kannes in view of Martin et al. based on the amendments to claim 1 and the legal and technical arguments set forth above and below. Moreover, claims 2-4 depend from independent claim 1 and are also nonobvious over Kannes in view of Martin et al. (MPEP § 2143.03). The Applicants, therefore, respectfully request reexamination, reconsideration and withdrawal of the rejection of claims 2-4 under 35 U.S.C. § 103(a) as being unpatentable over Kannes in view of Martin et al..

<u>Amended Independent Claim 8 and Dependent Claim</u>

As noted above, amended independent claim 8 of the Applicants' invention includes the claimed feature of providing a <u>seamless omni-directional image</u>.

In contrast, as discussed above, Kannes and Martin et al. both <u>lack</u> this claimed feature of the Applicants' invention. In addition to explicitly lacking this claimed feature, both Kannes and Martin et al. fail to implicitly disclose this claimed feature. In particular, Kannes and Martin et al. lack any suggestion and fail to provide any motivation for this claimed feature. Further, Kannes and Martin et al. fail to appreciate advantages of this claimed feature.

Therefore, as set forth in *In re Fine* and MPEP § 2142, Kannes and Martin et al. do not render the Applicants' claimed invention obvious. Consequently, because a prima facie case of obviousness cannot be established due to the lack of "some teaching, suggestion, or incentive", the rejection must be withdrawn. MPEP 2143.01; <u>ACS Hospital Systems, Inc. v. Montefiore Hospital</u>, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984).

Accordingly, the Applicants respectfully submit that amended independent claim 8 is patentable under 35 U.S.C. § 103(a) over Kannes in view of Martin et al. based on the amendments to claim 8 and the legal and technical arguments set forth above and below. Moreover, claim 17 depends from amended independent claim 8 and is also nonobvious over Kannes in view of Martin et al. (MPEP § 2143.03). The Applicants, therefore, respectfully request reexamination, reconsideration and withdrawal of the rejection of claim 17 under 35 U.S.C. § 103(a) as being unpatentable over Kannes in view of Martin et al..

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The Office Action rejected claim 6 under 35 U.S.C. § 103(a) as being unpatentable over Kannes in view of St. Hilaire (U.S. Patent No. 5,790,182). The Office Action contended that Kannes discloses all elements of the Applicants' claimed invention except for "not specifically teaching the camera system having a high resolution of approximately 1000 by 1000 pixels." However, Office Action contended that St. Hilaire teaches a "panoramic imaging system capable or providing images having approximately 1000 by 1000 pixels." Therefore, the Office Action contended that "it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Kannes in using the camera system having a high resolution of approximately 1000 by 1000 pixels . . . in order to provide high resolution images."

In response, the Applicants respectfully traverse this rejection based on the amendments to claim 1 and the legal and technical analysis above and below. The Applicants submit that Kannes and St. Hilaire lack at least one claimed feature of the Applicants' invention. In particular, neither Kannes nor St. Hilaire disclose, either explicitly or implicitly, the material claimed feature of an omni-directional camera system that provides a <u>seamless omni-directional image</u> of the event and simultaneously monitors the event participants.

Further, both Kannes and St. Hilaire fail to appreciate the advantages of this claimed feature. In addition, there is no technical suggestion or motivation disclosed in Kannes or St. Hilaire to define this claimed feature. Thus, the Applicants submit that Kannes and St. Hilaire cannot make obvious the Applicants' claimed feature of an omni-directional camera system that provides a seamless omni-directional image of the event.

<u>Amended Independent Claim 1 and Dependent Claim</u>

As noted above, amended independent claim 1 of the Applicants' invention includes the claimed feature of an omni-directional camera system that provides a <u>seamless</u> omni-directional image of the event. In contrast, as discussed above, Kannes does not explicitly disclose this claimed feature and does not implicitly suggest or provide motivation for this claimed feature.

St. Hilaire adds nothing to the cited combination that would render the Applicants' claimed invention obvious. As explained in the Applicants' discussion below, St. Hilaire also lacks a claimed feature of the Applicants' invention and does not explicitly disclose or implicitly suggest or provide motivation for the Applicants' claimed feature.

St. Hilaire merely discloses a system that creates high-resolution images using mirrors to reduce aberrations. (Abstract). However, the Applicants' claimed feature of a seamless omni-directional image is not discussed in St. Hilaire. Consequently, no motivation or suggestion for this feature of the Applicants' claimed invention is provided.

Absent this motivation or suggestion, St. Hilaire cannot render the Applicants' claimed invention obvious (MPEP § 2143.01). St. Hilaire also fails to appreciate or recognize the advantages of the Applicants claimed omni-directional camera system that provides a <u>seamless</u> omni-directional image of the event.

The Applicants, therefore, submit that obviousness cannot be established since both Kannes and St. Hilaire <u>lack</u> a material claimed feature of the Applicants' invention. Namely, the Applicants' claimed feature of an omni-directional camera system that provides a seamless omni-directional image of the event is not taught by Kannes and St Hilaire. In addition, both Kannes and St. Hilaire fail to implicitly disclose this claimed feature. In particular, Kannes and St. Hilaire lack any suggestion and fail to provide any motivation for this claimed feature. Further, Kannes and St. Hilaire fail to appreciate advantages of this claimed feature.

Therefore, as set forth in *In re Fine* and MPEP § 2142, Kannes and St. Hilaire simply cannot render the Applicants' claimed invention obvious. Consequently, because a prima facie case of obviousness cannot be established due to the lack of "some teaching, suggestion, or incentive", the rejection must be withdrawn. MPEP 2143.01; <u>ACS Hospital Systems, Inc. v. Montefiore Hospital</u>, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984).

Accordingly, the Applicants respectfully submit that amended independent claim 1 is patentable under 35 U.S.C. § 103(a) over Kannes in view of St. Hilaire based on the amendments to claim 1 and the legal and technical arguments set forth above and below. Moreover, claim 6 depends from amended independent claim 1 and is also nonobvious over Kannes in view of St. Hilaire (MPEP § 2143.03). The Applicants, therefore, respectfully request reexamination, reconsideration and withdrawal of the rejection of claim 6 under 35 U.S.C. § 103(a) as being unpatentable over Kannes in view of St. Hilaire.

The Office Action rejected claims 18-23 under 35 U.S.C. § 103(a) as being unpatentable over Kannes in view of Ono (U.S. Patent No. 6,133,941). The Office Action stated that Kannes discloses all elements of the Applicants' claimed invention except for "not specifically teaching to transmit the image from the computer to the remote module using a computer network." However, Office Action contended that Ono teaches such a computer network. Therefore, the Office Action contended that "it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Kannes in transmitting the image from the computer to the remote module using a computer network . . . because it improves the operability."

In response, the Applicants respectfully traverse these rejections based on the amendments to claim 18, the following legal analysis, and the technical analysis above and below. The Applicants submit that Kannes and Ono lack at least one claimed feature of the Applicants' invention. In particular, with regard to amended independent claim 18, neither Kannes nor Ono disclose, either explicitly or implicitly, the material claimed feature of using an omni-directional camera system having a single camera to produce a seamless omni-directional image. With regard to independent claim 21, neither Kannes nor Ono disclose, either explicitly or implicitly, the material claimed feature of a virtual director module that determines which of the multiple camera views to display by applying a set of expert video production rules.

Further, both Kannes and Ono fail to appreciate the advantages of these claimed features. In addition, there is no technical suggestion or motivation disclosed in Kannes or Martin et al. to define these claimed features. Thus, the Applicants submit that Kannes and Ono cannot make obvious the Applicants' claimed invention.

Amended Independent Claim 18 and Dependent Claims

Amended independent claim 18 of the Applicants' claimed invention includes a method for displaying at least a portion of a seamless omni-directional image capturing an event occurring within an event environment. The method in includes filming the event

using an omni-directional camera system having a single camera to produce the seamless omni-directional image. The method also includes transmitting the omni-directional image from a broadcasting platform to a viewer platform using a computer network, and using the viewer platform to allow a viewer to select which portion of the omni-directional image the viewer would like to view. In addition, the method in includes switching instantaneously between views of the omni-directional image by presenting the desired portion of the omni-directional image as selected by the viewer.

In contrast, as discussed above, Kannes does not explicitly disclose the Applicants' claimed feature of using an omni-directional camera system having a single camera to produce a seamless omni-directional image. Moreover, Kannes does not implicitly suggest or provide motivation for this claimed feature of the Applicants' claimed invention. Specifically, there is no suggestion or motivation because the camera system of Kannes is unable to provide a seamless omni-directional image.

Ono adds nothing to the cited combination that would render the Applicants' claimed invention obvious. As shown in the Applicant's discussion below, Ono also lacks a claimed feature of the Applicants' invention. Ono also does not explicitly disclose or implicitly suggest or provide motivation for the Applicants' claimed feature.

Ono merely discloses a camera control system and method to remotely control a camera over a computer network. However, nowhere does Ono discuss the Applicants' claimed feature of using an omni-directional camera system having a single camera to produce a seamless omni-directional image. Consequently, no motivation or suggestion for this feature of the Applicants' claimed invention is provided. Absent this motivation or suggestion, Ono cannot render the Applicants' claimed invention obvious (MPEP § 2143.01).

In addition to lacking this claimed feature of the Applicants' invention, Kannes and Ono fail to appreciate or recognize the advantages of the Applicants' claimed feature of using an omni-directional camera system having a single camera to produce

a <u>seamless omni-directional image</u>. Specifically, as claimed in claim 18, the seamless omni-directional image allows a viewer to select which portion of the image the viewer would like to see. This means that each viewer can select a specific portion of the omni-directional image. In addition, the seamless omni-directional image allows instantaneous switching between views. Neither Kannes nor Ono discuss or appreciate these advantages of the Applicants' claimed feature of using an omni-directional camera system having a single camera to produce a seamless omni-directional image.

The Applicants, therefore, submit that obviousness cannot be established since both Kannes and Ono <u>lack</u> a material claimed feature of the Applicants' invention. Namely, the Applicants' claimed feature of using an omni-directional camera system having a single camera to produce a <u>seamless omni-directional image</u> is not taught by Kannes and Ono.

In addition to explicitly lacking this feature, both Kannes and Ono fail to implicitly disclose this claimed feature. In particular, Kannes and Ono lack any suggestion and fail to provide any motivation for this claimed feature. Further, Kannes and Ono fail to appreciate advantages of this claimed feature. Therefore, as set forth in *In re Fine* and MPEP § 2142, Kannes and Ono simply cannot render the Applicants' claimed invention obvious. Consequently, because a prima facie case of obviousness cannot be established due to the lack of "some teaching, suggestion, or incentive", the rejection must be withdrawn. MPEP 2143.01; <u>ACS Hospital Systems, Inc. v. Montefiore Hospital</u>, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984).

Accordingly, the Applicants respectfully submit that amended independent claim 18 is patentable under 35 U.S.C. § 103(a) over Kannes in view of Ono based on the amendments to claim 18 and the legal and technical arguments set forth above and below. Moreover, claims 19 and 20 depend from amended independent claim 18 and are also nonobvious over Kannes in view of Ono (MPEP § 2143.03). The Applicants, therefore, respectfully request reexamination, reconsideration and withdrawal of the rejection of claims 18-20 under 35 U.S.C. § 103(a) as being unpatentable over Kannes in view of Ono.

## Independent Claim 21 and Dependent Claims

Independent claim 21 of the Applicants' claimed invention includes an automated event presentation system for capturing an event. The system includes a high-resolution omni-directional camera system that provides an omni-directional image of the event, the omni-directional image containing multiple camera views, and an automated online broadcasting system that is capable of broadcasting the omni-directional image over a computer network. In addition, the system includes a viewer platform in communication with the computer network that receives the omni-directional image. The system also includes a virtual director module within the automated online broadcasting system that determines which of the multiple camera views within the omni-directional image to display on the viewer platform. The virtual director module determines this by applying a set of expert production rules.

Expert video production rules are rules that the virtual director module uses to make decisions. For example, one such expert video production rule determines which camera view is an output camera view. Other examples of expert video production rules are found in the Applicants' specification (paragraph 0051 and paragraph 0052). In contrast, Kannes does not disclose a virtual director module that applies expert video production rules. The only rule used in Kannes is for selecting a camera based on which event participant is currently speaking. However, unlike the Applicants' claimed invention, this rule is not an expert video production rule base on expert rules.

Moreover, Kannes does not implicitly suggest or provide motivation for this claimed feature of the Applicants' claimed invention. Specifically, there is no suggestion or motivation because Kannes merely teaches selection of a principal image, which is quite different from the Applicants' claimed virtual director module that determines which of the multiple camera views to display by applying a set of expert video production rules. In fact, Kannes makes no mention of applying expert video production rules.

Ono adds nothing to the cited combination that would render the Applicants'

claimed invention obvious. As discussed above, Ono merely discloses a camera control system and method to remotely control a camera over a computer network. However, nowhere does Ono discuss the Applicants' claimed feature of a virtual director module that applies expert video production rules. Consequently, no motivation or suggestion for this feature of the Applicants' claimed invention is provided. Absent this motivation or suggestion, Ono cannot render the Applicants' claimed invention obvious (MPEP § 2143.01).

In addition to lacking this claimed feature of the Applicants' invention, Kannes and Ono <u>fail</u> to appreciate or recognize the <u>advantages</u> of the Applicants' claimed feature of the virtual director module that applies a set of expert video production rules. Specifically, the Applicants' claimed virtual director module that uses expert video production rules allows the system to "decide on the best camera view to display to a viewer" (specification, paragraph 0049, lines 1-2). This virtually eliminates "labor costs associated with broadcasting a meeting (specification, paragraph 0009, lines 5-7). Neither Kannes nor Ono discuss or appreciate these advantages of the Applicants' claimed feature of a virtual director module that uses a set of expert video production rules.

The Applicants, therefore, submit that obviousness cannot be established since both Kannes and Ono <u>lack</u> a material claimed feature of the Applicants' invention. Namely, the Applicants' claimed feature of a virtual director module that determines which of the multiple camera views to display by applying a set of expert video production rules is not taught by Kannes and Ono.

In addition to explicitly lacking this feature, both Kannes and Ono fail to implicitly disclose this claimed feature. In particular, Kannes and Ono lack any suggestion and fail to provide any motivation for this claimed feature. Further, Kannes and Ono fail to appreciate advantages of this claimed feature. Therefore, as set forth in *In re Fine* and MPEP § 2142, Kannes and Ono simply cannot render the Applicants' claimed invention obvious. Consequently, because a prima facie case of obviousness cannot be

established due to the lack of "some teaching, suggestion, or incentive", the rejection must be withdrawn. MPEP 2143.01; <u>ACS Hospital Systems, Inc. v. Montefiore Hospital</u>, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984).

Accordingly, the Applicants respectfully submit that independent claim 21 is patentable under 35 U.S.C. § 103(a) over Kannes in view of Ono based on the legal and technical arguments set forth above and below. Moreover, claims 22 and 23 depend from independent claim 21 and are also nonobvious over Kannes in view of Ono (MPEP § 2143.03). The Applicants, therefore, respectfully request reexamination, reconsideration and withdrawal of the rejection of claims 21-23 under 35 U.S.C. § 103(a) as being unpatentable over Kannes in view of Ono.

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The Office Action rejected claim 24 under 35 U.S.C. § 103(a) as being unpatentable over Kannes in view of Ono and further in view of Bruno et al. (U.S. Patent No. 5,710,591). The Office Action contended that the combination of Kannes and Ono disclose or suggest most of the elements of the Applicants' claimed invention except that the combination "differs from the claimed invention in not specifically teaching to provide negative switching that allows switching to a camera view of a person speaking before [he] begins to speak." However, the Office Action maintained that Bruno et al. teach this feature. Thus, the Office Action contended that "it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the combination of Kannes and Ono in switching to a camera view of a person speaking before [he] begins to speak . . . because it makes user friendly for subsequent retrieval and processing."

In response, the Applicants respectfully traverse this rejection based on the legal and technical analysis above and below. The Applicants submit that Kannes, Ono and Bruno et al. lack at least two claimed features of the Applicants' invention. In particular, Kannes, Ono and Bruno et al. do not disclose, either explicitly or implicitly, the material

claimed feature of a <u>virtual director module</u> that determines which of the multiple camera views to display by <u>applying a set of expert video production rules</u>. In addition, Kannes, Ono and Bruno et al. do not disclose, either explicitly or implicitly, the material claimed feature of a <u>switching module</u> capable of providing <u>negative switching</u>

Further, Kannes, Ono and Bruno et al. fail to appreciate the advantages of these claimed features. In addition, there is no technical suggestion or motivation disclosed in Kannes, Ono and Bruno et al. to define these claimed features. Thus, the Applicants submit that Kannes, Ono and Bruno et al. cannot make obvious the Applicants' claimed features set forth above.

With regard to independent claim 21 (from which claim 24 depends), the Applicants note that as argued above Kannes and Ono lack at least one claimed feature of the Applicants' invention. In particular, neither Kannes nor Ono disclose, either explicitly or implicitly, the material claimed feature of a virtual director module that determines which of the multiple camera views to display by <u>applying a set of expert video production rules</u>. Moreover, as discussed above, Kannes and Ono fail to appreciate the advantages of this claimed feature. In addition, there is no technical suggestion or motivation disclosed in Kannes and Ono to define this claimed feature, and Kannes and Ono fail to recognize and appreciate the advantages of this claimed feature.

Bruno et al. add nothing to the cited combination that would render the Applicants' claimed invention obvious. Bruno et al. merely disclose a method and an apparatus for recording and indexing audio information during a multimedia conference (Abstract). However, the Applicants' claimed element of a virtual director module that applies expert video production rules is not discussed. Consequently, no motivation or suggestion for this feature of the Applicants' claimed invention is provided. Absent this motivation or suggestion, Bruno et al. cannot render the Applicants' claimed invention obvious (MPEP § 2143.01).

In addition to lacking this claimed feature of the Applicants' invention, Kannes, Ono and Bruno et al. fail to appreciate or recognize the advantages of the Applicants' claimed feature of the virtual director module that applies a set of expert video production rules, as discussed above.

Therefore, as set forth in *In re Fine* and MPEP § 2142, Kannes, Ono and Bruno et al. simply cannot render the Applicants' claimed invention obvious. Consequently, because a prima facie case of obviousness cannot be established due to the lack of "some teaching, suggestion, or incentive", the rejection must be withdrawn. MPEP 2143.01; <u>ACS Hospital Systems, Inc. v. Montefiore Hospital</u>, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984).

Accordingly, the Applicants respectfully submit that independent claim 21 is patentable under 35 U.S.C. § 103(a) over Kannes and Ono in view of Bruno et al. based on the legal and technical arguments set forth above and below. Moreover, claim 24 depends from independent claim 21 and is also nonobvious over Kannes, Ono and Bruno et al. (MPEP § 2143.03). The Applicants, therefore, respectfully request reexamination, reconsideration and withdrawal of the rejection of claim 24 under 35 U.S.C. § 103(a) as being unpatentable over Kannes and Ono in view of Bruno et al..

With regard to claim 24, Kannes, Ono and Bruno et al. also fail to disclose or suggest another claimed feature of the Applicants' invention. Namely, the claimed feature of a switching module that provides <u>negative switching</u> is <u>missing</u> from Kannes, Ono and Bruno et al..

Claim 24 includes a <u>switching module</u> that is capable of providing <u>negative switching</u>. This negative switching allows the <u>switching to a camera view</u> of a person speaking <u>before that person begins to speak</u>. In other words, before a person begins to speak the camera view shows that person that will speak. This is performed on a recorded video by "determining the delay that exist between the time a new speaker starts talking and the camera switches to the speaker. This delay can be subtracted out

of the recorded video" (specification, paragraph 0054, lines 11-15). "Moreover, for the recorded meeting it is even possible to achieve camera switching in negative time (or negative switching). In other words, the camera view changes from the person talking to the person that will talk next even before the next person starts talking" (specification, paragraph 0054, lines 19-22).

In contrast, Kannes, Ono and Bruno et al. all fail to disclose or suggest this claimed feature. The Office Action stated that Bruno et al. show this claimed feature at column 4, line 62 through column 5, line 7. In these passages, Bruno et al. disclose a "voice-activated switching mode" for "controlling the video signal" (col. 4, lines 62-63). In this embodiment of Bruno et al., a control unit (MCU) "will display the image of the loudest speaking user/conferee on each of the other users' workstations" (col. 4, lines 64-65). In addition, an "image of the previous speaker's location will be displayed on the current speaker's screen" (col. 4, lines 65-67). Thus, the current speaker has displayed on his screen an image of the previous speaker while the other users have displayed on their screens an image of the current speaker.

In another embodiment, Bruno et al. disclose "voice-activated switching mode" where the "MCU switches the video signal from the current speaker's location only when the that speaker [i.e., the current speaker] stops talking" (col. 5,lines 1-3). In other words, "the MCU will change the video display only after the current speakers stops talking and a new speaker begins talking" (col. 5, lines 3-5).

It is the Applicants' position neither one of these embodiments of Bruno et al. disclose or suggest the Applicants' claimed negative switching. As a general argument, the Applicants note that Bruno et al. uses voice-activated switching. In other words, when a person's voice is detected the MCU switches to that current speaker. Because it is voice-activated, it is impossible for the MCU to switch views before it is activated by a voice.

With regard to the specific embodiments; in the first embodiment the current speaker is displayed only <u>after</u> he begins speaking.  This must be so because he is the <u>current</u> speaker (as opposed to the next speaker).  In the second embodiment of Bruno et al., the speaker is displayed on the video display "only <u>after the current speaker stops talking</u> and a <u>new speaker begins talking</u>" (col. 5, lines 3-5).  Conversely, the Applicants' claimed <u>negative switching</u> switches camera views <u>before</u> the <u>next speaker begins speaking</u>.  Clearly, this is different from the voice-activated switching disclosed in Bruno et al..

In addition to lacking this claimed feature of the Applicants' invention, Kannes, Ono and Bruno et al. <u>fail</u> to appreciate or recognize the <u>advantages</u> of the Applicants' claimed feature of the switching module including negative switching.  Specifically, the Applicants' claimed switching module including negative switching "allows a camera view to be switched without delay.  Even a short delay between the time when a person begins speaking and the time when the camera view shows the speaker can be quite distracting to a viewer.  This camera switching latency can distract the viewer to the point that the viewer has a negative viewing experience" (specification, paragraph 0054, lines 2-5).  "For recorded (on –demand) broadcasting, any camera switching latency errors can be corrected and even eliminated" (specification, paragraph 0054, lines 11-12).  Kannes, Ono and Bruno et al. do not discuss or appreciate these advantages of the Applicants' claimed feature of a switching module capable of providing negative switching.

In addition to explicitly lacking this feature, Kannes, Ono and Bruno et al. fail to implicitly disclose this claimed feature.  In particular, Kannes, Ono and Bruno et al. lack any suggestion and fail to provide any motivation for this claimed feature.  Further, Kannes, Ono and Bruno et al. fail to appreciate advantages of this claimed feature.  Therefore, as set forth in *In re Fine* and MPEP § 2142, Kannes, Ono and Bruno et al. simply cannot render the Applicants' claimed invention obvious.  Consequently, because a prima facie case of obviousness cannot be established due to the lack of "some teaching, suggestion, or incentive", the rejection must be withdrawn.  MPEP

2143.01; <u>ACS Hospital Systems, Inc. v. Montefiore Hospital</u>, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984).

Accordingly, the Applicants respectfully submit that independent claim 24 is patentable under 35 U.S.C. § 103(a) over Kannes and Ono in view of Bruno et al. based on the legal and technical arguments set forth above and below. The Applicants, therefore, respectfully request reexamination, reconsideration and withdrawal of the rejection of claim 24 under 35 U.S.C. § 103(a) as being unpatentable over Kannes and Ono in view of Bruno et al..

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The Office Action rejected claim 28 under 35 U.S.C. § 103(a) as being unpatentable over Kannes. The Office Action contended that Kannes discloses or suggests all elements of the Applicants' claimed invention.

In response, the Applicants respectfully traverse this rejection based on the amendments to claims 18 and 28 and the legal and technical analysis above and below. As argued above, the Kannes lacks at least one claimed feature of the Applicants' invention. In particular, Kannes does not disclose, either explicitly or implicitly, the material claimed feature of using an omni-directional camera system having a single camera to produce a <u>seamless omni-directional image</u>.

Further, as discussed above, Kannes fails to appreciate the advantages of this claimed feature. In addition, there is no technical suggestion or motivation disclosed in Kannes to define this claimed feature and Kannes fails to recognize and appreciate the advantages of this claimed feature.

Therefore, as set forth in *In re Fine* and MPEP § 2142, Kannes simply cannot render the Applicants' claimed invention obvious. Consequently, because a prima facie

case of obviousness cannot be established due to the lack of "some teaching, suggestion, or incentive", the rejection must be withdrawn. MPEP 2143.01; ACS Hospital Systems, Inc. v. Montefiore Hospital, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984).
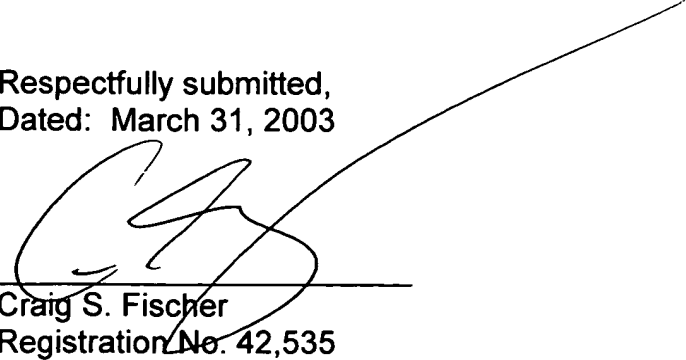
Accordingly, the Applicants respectfully submit that amended independent claim 18 is patentable under 35 U.S.C. § 103(a) over Kannes based on the amendments to claim 18 and the legal and technical arguments set forth above and below. Moreover, amended claim 28 depends from amended independent claim 18 and is also nonobvious over Kannes (MPEP § 2143.03). The Applicants, therefore, respectfully request reexamination, reconsideration and withdrawal of the rejection of amended claim 28 under 35 U.S.C. § 103(a) as being unpatentable over Kannes.
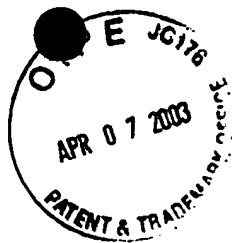
## Conclusion

In view of the arguments and amendments set forth above, the Applicants submit that claims 1-28 of the subject application are in immediate condition for allowance. The Examiner is respectfully requested to withdraw the outstanding rejections of the claims and to pass this application to issue.

In an effort to expedite and further the prosecution of the subject application, the Applicants kindly invite the Examiner to telephone the Applicants' attorney at (805) 278-8855 if the Examiner has any comments, questions or concerns, wishes to discuss any aspect of the prosecution of this application, or desires any degree of clarification of this response.

Respectfully submitted,
Dated: March 31, 2003

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**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

## IN THE CLAIMS

Following are marked-up versions of amended claims 1, 8, 18, 25 and 28:

1.      (Twice Amended)  An automated event presentation system for capturing and viewing an event having event participants, comprising:

an omni-directional camera system that provides [an] a seamless omni-directional image of the event and that simultaneously monitors the event participants and films the event;

an automated online broadcasting system that controls and uses the omni-directional camera system to keep track of each of the monitored event participants simultaneously, and broadcasts the event;  and

a viewer platform in communication with the automated online broadcasting system that allows a viewer to view the broadcasted event.

8.      (Twice Amended)  A method for filming and recording an event having event participants and presenting the event to a viewer, comprising:

filming and recording the event using an omni-directional camera system to provide [an] a seamless omni-directional image that contains each of the event participants;

determining a location of the event participants in the omni-directional image;

providing a user interface that allows a choice of which of the event participants in the omni-directional image to view, the choice being made by at least one of:  (a) the viewer;  (b) a virtual director;  and

switching instantaneously between views of the event participants in the omni-directional image in response to the choice.

18.      (Twice Amended)  A method for displaying at least a portion of [an] a

seamless omni-directional image capturing an event occurring within an event environment, comprising:

filming the event using an omni-directional camera system having a single camera to produce the seamless omni-directional image;

transmitting the omni-directional image from a broadcasting platform to a viewer platform using a computer network;

using the viewer platform to allow a viewer to select which portion of the omni-directional image the viewer would like to view; and

switching instantaneously between views of the omni-directional image by presenting a desired portion of the omni-directional image as selected by the viewer.


25.    (Once Amended) The automated event presentation system as set forth in claim 1, wherein the omni-directional camera system requires no [visible] physical movement to capture the event participants.


28.    (Once Amended)  The [automated event presentation system] method as set forth in claim [1] 18, further comprising:

transmitting a low-resolution version of the omni-directional image to the viewer platform, wherein the omni-directional image produced by the omni-directional camera system is a high-resolution omni-directional image;

selecting which portion of the omni-directional image to view, the selection being made by at least one of:  (a) manually by the viewer;  (b) automatically by a virtual director module;  and

transmitting a high-resolution version of the selected portion of the omni-directional image to the viewer platform.